IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A process for preparing isobutene by acid-catalyzed dissociation of methyl tert-butyl ether (MTBE), ~~which comprises~~ said process comprising:

fractionating a feed mixture comprising MTBE, C_4- and C_5-hydrocarbons, methanol, methyl sec-butyl ether, TBA and C_4 oligomers to give

a) a fraction a), comprising MTBE, MSBE, TBA and C_4 oligomers, and

b) a fraction b), comprising C_4- and C_5-hydrocarbons, MTBE and methanol,

c) dissociating the MTBE present in the fraction a) into methanol and isobutene, and

d) dissociating the dissociation product from c) which comprises unreacted MTBE, methanol, isobutene and low boilers and high boilers in a column into an isobutene-containing top product and a bottom product comprising the unreacted MTBE and the major part of the methanol from the dissociation, and recirculating the bottom product to the feed mixture.

Claim 2 (Currently Amended): The process as claimed in claim 1, wherein

the C_4 oligomers, MSBE and TBA are separated off from the fraction a) by means of a distillation, in which they are taken off as bottom product.

Claim 3 (Currently Amended): The process as claimed in claim 1, wherein

the C_4 oligomers, MSBE and TBA are separated off from the fraction a) by means of a bleed stream.

Claim 4 (Currently Amended): The process as claimed in claim 1 ~~any of claims 1 to 3~~, wherein

the isobutene-containing stream, which has been separated off from the dissociation product from c), is fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 5 (Currently Amended): The process as claimed in claim 1 ~~any of claims 1 to 3~~, wherein

the isobutene-containing stream, which has been separated off from the dissociation product from c), is scrubbed with water, and subsequently fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 6 (Currently Amended): The process as claimed in claim 4 ~~or 5~~, wherein

~~the~~ water present in the isobutene-containing stream is removed by means of a decanter.

Claim 7 (Currently Amended): The process as claimed in claim 4 ~~any of claims 4 to 6~~, wherein

~~the~~ water present in the isobutene-containing stream is removed by means of a decanter located in the top section of the purification column.

Claim 8 (Currently Amended): The process as claimed in claim 4 ~~any of claims 4 to 7~~, wherein

~~the~~ water present in the isobutene-containing stream is removed by means of a decanter which is located at a ~~the~~ side offtake of the purification column.

Claim 9 (Currently Amended): The process as claimed in claim 1 ~~any of claims 1 to 8~~, wherein

the dissociation of step c) and the separation of the isobutene in step d) from the MTBE present in fraction a) are carried out in a reactive distillation column.

Claim 10 (New): The process as claimed in claim 2, wherein

the isobutene-containing stream, which has been separated off from the dissociation product from c), is fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 11 (New): The process as claimed in claim 3, wherein

the isobutene-containing stream, which has been separated off from the dissociation product from c), is fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 12 (New): The process as claimed in claim 2, wherein

the isobutene-containing stream, which has been separated off from the dissociation product from c), is scrubbed with water, and subsequently fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 13 (New): The process as claimed in claim 3, wherein

the isobutene-containing stream, which has been separated off from the dissociation product from c), is scrubbed with water, and subsequently fractionated in a purification column to give a bottom product consisting of pure isobutene and a top product comprising isobutene and volatile by-products.

Claim 14 (New): The process as claimed in claim 5, wherein

water present in the isobutene-containing stream is removed by means of a decanter.

Claim 15 (New): The process as claimed in claim 5, wherein

water present in the isobutene-containing stream is removed by means of a decanter located in the top section of the purification column.

Claim 16 (New): The process as claimed in claim 6, wherein

the water present in the isobutene-containing stream is removed by means of a decanter located in the top section of the purification column.

Claim 17 (New): The process as claimed in claim 5, wherein

water present in the isobutene-containing stream is removed by means of a decanter which is located at a side offtake of the purification column.

Claim 18 (New): The process as claimed in claim 6, wherein

the water present in the isobutene-containing stream is removed by means of a decanter which is located at a side offtake of the purification column.

Claim 19 (New): The process as claimed in claim 7, wherein

the water present in the isobutene-containing stream is removed by means of a decanter which is located at a side offtake of the purification column.

Claim 20 (New): The process as claimed in claim 2, wherein

the dissociation of step c) and the separation of the isobutene in step d) from the MTBE present in fraction a) are carried out in a reactive distillation column.